

LEARNING OUTCOMES K – 6

The following are the learning outcomes for Kindergarten to Grade 6. At each level, outcomes have been specified in the five main content areas of Statistics, Geometry, Measurement, Number Concepts, and Computation.

The outcomes for each content area have been organised according to specific topics. However, some sets of outcomes also contain general outcomes. These outcomes are not related to any one specific topic. They have been specifically identified as general outcomes because they should be developed and reinforced as students engage in activities focussing on the other outcomes related to the content area.

KINDERGARTEN

Statistics/Data Management

Topic

Learning Outcomes

By the end of Kindergarten, students should be able to:

General/Readiness

1. Classify objects according to selected attributes, e.g., size, colour, shape, texture, sound, etc.

Data Collection

Collecting data through looking
Determining frequency

2. Collect simple sets of data in the class and school environment, using observation.
3. Describe the results of classification and data collection activities.
4. Use counting to determine the number of objects in a group.

Data Representation

Recording data using Words and objects

5. Use simple statements to record and represent data, e.g., 'John has four marbles'.
6. Represent data graphically using objects, e.g., picture cutouts, blocks.

Data Interpretation

Use of comparative terms
Related to quantity

7. Compare data using phrases such as 'more than', 'less than', 'one more than', 'the same as', the most, etc.

Geometry

Topic

Learning Outcomes

By the end of Kindergarten, students should be able to:

General/Readiness

1. Describe the attributes of objects using phrases such as 'round', 'straight', 'flat', 'curved', etc.

Three-Dimensional Shapes

2. Describe the attributes of three-dimensional shapes using phrases such as 'roll', 'slide', 'stack up', 'flat', 'round', 'curved', etc.
3. Classify three-dimensional shapes on the basis of their attributes, e.g., shape, size, and function in real life.
4. Identify examples of three-dimensional shapes in real life.
5. Use three-dimensional shapes to make objects, e.g., a rocket, a house.

Plane Shapes

Two-dimensional Shapes

6. Describe the attributes of two-dimensional shapes.
7. Classify two-dimensional shapes on the basis of their attributes, e.g., shape and size.
8. Identify objects in real life that are made up of two dimensional shapes.
9. Use cutouts of two-dimensional shapes to make patterns and pictures.
10. Trace two-dimensional shapes.

Spatial

Relationships

11. Identify rectangles and circles by name.
12. Describe the relative position of objects using relationships such as 'above', 'below', 'in', 'on', 'outside', 'inside', etc.

Measurement

Topic

Learning Outcomes

By the end of Kindergarten, students should be able to:

Linear Measurement

Vocabulary for Length
Height
Distance

1. Describe the lengths of objects using phrases such as ‘short’, ‘long’, ‘wide’, etc.
2. Compare lengths of objects using phrases such as ‘longer than’, ‘shorter than’, ‘wider than’, etc.
3. Describe heights of objects using phrases such as ‘tall’, ‘short’.
4. Compare the heights of objects using phrases such as ‘taller than’, ‘shorter than’, etc.
5. Describe distances using phrases such as ‘short’, ‘long’, ‘far away’, ‘nearby’, etc.
6. Compare distances using phrases such as ‘shorter’, ‘longer’, ‘closer’, ‘further’, etc.

Measurement of mass

7. Describe the mass of objects as heavy, light, very light, etc.
8. Compare the mass of objects, using phrases such as ‘heavier than’, ‘lighter than’, ‘as heavy as’, etc.

Measurement of Capacity

9. Describe the capacity of containers using phrases such as ‘holds a lot’, ‘holds a little’, etc.
10. Compare the capacity of containers using phrases such as ‘holds more than’, ‘holds the same as’, etc.

Use of non-Standard units

Estimation
Measurement

11. Estimate the length, mass, and capacity of objects using non-standard units.
12. Measure the length, mass, and capacity of objects using non-standard units.
13. Solve problems involving the estimation and measurement of length, mass, and capacity using non-standard units.

Time

Vocabulary
Days of the Week
Months of the Year
Time on the Hour

14. Use time vocabulary appropriately: e.g., today, yesterday, tomorrow, morning, afternoon, etc.
15. Name the days of the week.
16. Identify the current day, ‘Today is ...’.
17. Identify the day corresponding to tomorrow or yesterday given the current day.
18. Identify the current month.
19. State the month in which they were born.
20. Tell time on the hour.
21. Represent time on the hour on an actual or model clock.
22. Represent the time for events that occur on the hour, using an

actual or model clock.

Money

Features of
coins

Representation of
amounts of money

23. Describe the 1cent, 2 cent, and 5 cent coins.
24. Identify the 1cent, 2 cent, and 5 cent coins.
25. Represent 2 cents and 5 cents in different ways, using coins and drawings.
26. Find the total value of a set of coins up to a total of 5 cents.

Number Concepts

Topic

Learning Outcomes

By the end of Kindergarten, students should be able to:

General/Readiness

1. Classify objects into sets, according to shape, size, colour, texture, sound, etc.
2. Describe a set of objects using phrases such as 'large', 'small', 'many', 'few', etc.

Counting

3. Count in sequence up to 50.
4. Count backwards from 10.
5. Count the number of objects in a set of up to 12 objects.
6. Solve problems related to counting operations.

Whole Numbers

Representation of numbers

Making and

Comparing sets

Ordinal numbers

7. Read and identify the numerals 0 to 12.
8. Write the correct numeral to indicate the number of objects in a set.
9. Write numbers from zero to twelve in words.
10. Make sets of up to 12 objects.
11. Identify sets that are equal in number but arranged differently.
12. Draw a variety of arrangements to represent a set of a given size.
13. Make a set that has the same number of objects as a given set.
14. Make a set that has one more object than a given set.
15. Compare the number of objects in two sets, using 1-1 correspondence.
16. Compare the number of objects in sets of up to 12 objects using phrases such as 'same number as', 'equal to', 'more than', 'less than', 'one more than', etc.
17. Compare the number of objects in two sets with up to 12 objects using the symbols '=' and '>'.
18. Identify the position of an object in an ordinal arrangement of up to 5 objects.

Introduction to the Calculator

19. Describe physical features of a simple calculator, e.g., the keys, the display area.
20. Use calculators to investigate counting operations.

Computation

Topic

Learning Outcomes

By the end of Kindergarten, students should be able to:

Addition

Vocabulary
Representation of
addition

1. Combine two sets of objects, and count the number of objects in the resulting set, with totals up to 9.
2. Describe the set obtained from combining two sets of objects using phrases such as 'larger', 'has more than', etc.
3. Use objects to add two numbers, with totals up to 9.
4. Use pictorial representations to add two numbers, with totals up to 9.
5. Write number sentences to represent addition.
6. Identify situations in their everyday activities (e.g., games) where they use addition.
7. Create and solve problems involving addition.

Subtraction

Vocabulary
Representation of
subtraction

8. Separate a set of objects by taking away a given quantity of objects.
9. Describe the resulting set obtained after the separation of a set, using phrases such as 'has less than'.
10. Use objects to subtract one number from another, with both numbers being less than or equal to 9.
11. Use pictorial representations to subtract one number from another, with both numbers being less than or equal to 9.
12. Write number sentences to represent subtraction.
13. Identify situations in their everyday activities(e.g., sharing sweets) where they use subtraction.
14. Create and solve simple problems involving subtraction.

Use of the Calculator

15. Identify the keys for addition and subtraction on their calculators.
16. Explain how to use the calculator to add or subtract two numbers.

GRADE ONE

Statistics/Data Management

Topic

Learning Outcomes

By the end of Grade One, students should be able to:

Data Collection

Collecting data through
Looking and asking
Recording data using
Numbers and words

1. Classify objects and people (e.g., classmates) according to selected criteria.
2. Collect simple sets of data in the class and school environment through observation and simple interviews.
3. Record collected data using simple number statements.

Data Representation

Recording data using
objects and tables
Describing simple
graphs

4. Represent collected data using objects, e.g., picture cutouts and blocks.
5. Describe how data are presented in simple tables.
6. Describe how data are presented in simple pictographs, where one picture represents one unit of data.
7. Describe how data are presented in simple bar graphs, where one block represents one unit of data.
8. Describe similarities and differences between pictographs and bar graphs.

Data Interpretation

Interpreting tables
and graphs

9. Read the data presented in simple tables.
10. Interpret the data represented in tables.
11. Read the data represented in simple pictographs and bar graphs.
12. Interpret the data represented in simple pictographs and bar graphs.

Geometry

Topic

Learning Outcomes

By the end of Grade One, students should be able to:

Three-
Dimensional
Shapes
Classification
Attributes/Features

1. Describe the attributes of three-dimensional shapes, using phrases such as flat, curved, round, etc.
2. Classify three-dimensional shapes on the basis of their attributes such as shape, size, and/or function.
3. Select and use their own criteria to classify three-dimensional shapes.
4. Explain the criteria that they selected and used to classify a set of three-dimensional shapes.
5. Explain why a given three-dimensional shape can slide, roll, or stack.
6. Classify objects (e.g., lead pencils, sticks of chalk, balls, etc.) according to the three-dimensional shape they represent.
7. Use three-dimensional shapes to make objects, e.g., a tower, a car.

Plane Shapes
Classification
Naming shapes
Drawing shapes
Spatial relationships

8. Identify examples of two-dimensional shapes.
9. Classify two-dimensional shapes on the basis of their attributes, e.g., shape, size, number of sides.
10. Select and use their own criteria to classify two-dimensional shapes.
11. Explain the criteria that they used to classify a set of two-dimensional shapes.
12. Identify and name rectangles, squares, and circles.
13. Sketch two-dimensional shapes.
14. Use two-dimensional shapes to draw patterns and pictures.
15. Make observations about their patterns and pictures. (E.g., Some two-dimensional shapes make patterns that cover a page, others leave spaces.)
16. Identify the relative position of objects presented in concrete and pictorial form.
17. Position objects according to descriptions of their relative position.

Measurement

Topic

Learning Outcomes

By the end of Grade One, students should be able to:

Linear

Measurement

Use of non-standard units

Use of the metre

To measure length,

Height and distances

1. Estimate lengths and heights of objects using non-standard units.
2. Measure lengths and heights of objects using non-standard units.
3. Estimate and measure distances in the school environment using non-standard units.
4. Explain why standard units are necessary.
5. Estimate and measure lengths and heights of objects using the metre as the unit of measure.
6. Estimate and measure distances in the school environment using the metre as the unit of measure.
7. Record linear measurements using appropriate notation.
8. Compare two linear measurements using phrases such as longer than, shorter than, taller than, etc.

Measurement of

Mass

Use of non-standard Units

Use of the kilogram

Comparison of mass

9. Estimate and measure the mass of objects using non-standard units.
10. Estimate and measure the mass of objects using the kilogram as the unit of measure.
11. Record measurements of mass using appropriate notation.
12. Compare the mass of two objects, using phrases such as heavier than, lighter than, etc.

Measurement of

Capacity

Use of non-standard Units

13. Estimate and measure the capacity of containers using non-standard units.
14. Compare the capacity of containers using non-standard units, using phrases such as holds more than, holds less than, etc.
15. Record measurements of capacity using appropriate notation.

Measurement of

Temperature

16. Describe the temperature of an object using phrases such as 'warm', 'hot' 'cold', etc.

Time

Vocabulary

Use of the calendar

Time on the hour and half-hour

17. Use time vocabulary appropriately, e.g., now, later, soon, year, month day, etc.
18. Name the days of the week.
19. State the number of days in a week.
20. Name the months of the year.
22. State and write the date of the current day.
23. Tell time on the hour and half-hour.
24. Read and write time on the hour and half hour in several ways (e.g., 8:00, eight o' clock).

25. Represent time on the hour and half-hour.
26. Represent and write the time for events that occur on the hour or half-hour, e.g., break time.

Money

Describing coins

Representing money

Making change

27. Describe the 1 cent, 2 cent, 5 cent, and 10 cent coins.
28. Identify the 1 cent, 2 cent, 5 cent, and 10 cent coins.
29. Represent a coin value (up to 20 cents) using several combinations of coins.
30. Find the total value of a combination of coins, with totals up to 20 cents.
31. Make change from amounts up to 20 cents, using counting on.
32. Create and solve problems involving money.

Number Concepts

Topic

Learning Outcomes

By the end of Grade One, students should be able to:

Counting

Counting forward,
backwards, counting
on, skip counting

1. Use calculators to count in a variety of ways.
2. Count in sequence to 100.
3. Count by 10's to 100.
4. Count by 2's and 5's to 50.
5. Count backwards from 10.
6. Count on from a given number.

Whole numbers

Making and comparing
sets
Representing numbers
Ordinal numbers

7. Write numbers up to twenty in words.
8. Count and identify the number of objects in a set of up to 20 objects.
9. Make and draw sets of up to 20 objects.
10. Make and draw a set that is equal to, one more than, or one less than a given set.
11. Compare sets of up to twenty objects using the symbols '=', '>', or '<'.
12. Write the correct numeral to indicate the number of objects in a set.
13. Read and write numerals up to 20.
14. Compare pairs of numerals (up to 20) using the symbols '<' or '>'.
15. Identify the position of an object in an ordinal arrangement of up to 10 objects.
16. Use collective number names such as pair, set, group.

Fractions

Meaning of a whole
And a part
One-half, one-quarter
Of a whole

17. Identify a whole and parts of a whole.
18. Identify one-half and one-quarter of a whole.
19. Explain what one-half and one-quarter mean.
20. Represent one-half and one quarter of a whole.
21. Read and write the fractions $\frac{1}{2}$ and $\frac{1}{4}$.

Computation

Topic

Learning Outcomes

By the end of Grade One, students should be able to:

General

Vocabulary
Relationships among
Operations
Basic facts

1. Describe the procedures for carrying out addition, subtraction, and multiplication, using appropriate vocabulary such as ‘total’, ‘sum’, ‘join together’, ‘subtract’, ‘take away’, ‘sets of’, ‘times’, etc.
2. Use several devices (e.g., concrete and pictorial representations, a calculator) to explore the properties of addition and subtraction, e.g., if $5 + 2 = 7$ then $2 + 5 = 7$; $7 - 0 = 7$.
3. Use several devices to demonstrate relationships among the number facts for addition and subtraction, e.g., if $5 + 4 = 9$ then $9 - 5 = 4$.
4. Use several devices and strategies (e.g., properties of addition and subtraction) to build up the basic number facts for addition and subtraction.

Addition Of whole numbers

Concrete, pictorial
And symbolic
Representation

5. Create and solve problems involving addition of one digit numbers, with totals up to 20.
6. Add two one-digit numbers, using objects and pictures/diagrams.
7. Add three one-digit numbers, using objects and pictures/diagrams, with totals up to 20.
8. Mentally add two one-digit numbers, with totals up to 10.
9. Write number sentences to represent addition.
10. Use objects to determine the missing number in an addition number sentence, e.g., $7 + \theta = 12$, $\theta + 4 = 8$.

Subtraction of Whole numbers

Concrete, pictorial,
and symbolic
representation

11. Create and solve problems involving subtraction situations.
12. Subtract a one-digit number from numbers up to 20, using objects and pictures/diagrams.
13. Write number sentences to represent subtraction.

Multiplication of Whole numbers

Repeated addition

14. Use objects and pictures/diagrams to show repeated addition situations.
15. Describe repeated addition situations using ‘sets of’.
16. Write number sentences to represent repeated addition situations, e.g., $2 + 2 + 2 = 6$, 3 sets of 2 make 6.
17. Complete multiplication number statements, with products up to 12.
18. Create and solve problems involving multiplication with products up to 12.

GRADE TWO

Statistics/ Data Management

Topic

Learning Outcomes

By the end of Grade Two, students should be able to:

Data collection

Simple questions of interest to students.
Procedures for observation and interviewing.
Collecting and recording data.

1. Generate questions that may be answered through data collection.
2. Describe how to collect data through observation and simple interviews
3. Identify similarities and differences between observation and interviewing.
4. Collect simple sets of data through observation and simple interviews.
5. Use number statements to record the collected data.

Data representation

Use of tables, pictographs, and bar graphs.

6. Describe how data are represented in a table.
7. Record collected data in tables.
8. Describe how data are represented in pictographs and bar graphs.
9. Explain the benefits of presenting data in tables and graphs.
10. Select appropriate means, pictograph or bar graph, to graphically represent collected data.
11. Represent recorded data by completing pictographs or bar graphs for which an outline or grid has been provided, and in which one picture or bar represents one unit of data.

Interpretation of data

Reading tables and graphs.
Answering simple questions on the information in the graph.

12. Read the data presented in simple tables, pictographs, and bar graphs.
13. Interpret the data in simple tables, pictographs, and bar graphs.

Geometry

Topic

Learning Outcomes

By the end of Grade Two, students should be able to:

Three-dimensional shapes

Faces of three-dimensional shapes

Classification

Cubes, cuboids, cones and cylinders

Plane shapes

Sides of two-dimensional shapes

Classification

Squares, rectangles, circles, triangles

Drawing shapes

Curves and straight lines

Spatial relationships

1. Identify the faces of three-dimensional shapes.
2. Identify the two-dimensional shapes that make up the faces of three-dimensional shapes.
3. Classify three-dimensional shapes on the basis of their attributes, e.g., the number of faces, shape of their faces, size, function, etc.
4. Describe and compare the groups formed from their classification exercises.
5. Identify and name examples of cubes, cuboids, cones, cylinders, and spheres when presented in concrete or pictorial form.
6. Identify the sides of a two-dimensional shape.
7. Describe two-dimensional shapes in terms of the number and length of their sides.
8. Classify two-dimensional shapes on the basis of their attributes, e.g., shape, size, number of sides.
9. Identify and name squares, rectangles, triangles, and circles.
10. Sketch squares, rectangles, triangles, and circles.
11. Sketch two-dimensional shapes that are a composition of squares, rectangles, triangles, and/or circles.
12. Sketch two-dimensional shapes according to given descriptions.
13. Copy drawings of curves and straight lines.
14. Draw curves and straight lines.
15. Sketch pictures to represent descriptions of the relative positions of two or more objects.
16. Describe the relative position of objects using phrases such as by, on in inside, outside, opposite, beside, etc.

Measurement

Topic

Learning Outcomes

By the end of Grade Two, students should be able to:

Linear Measurement

Estimation and measurement of length, height, and distances using the metre

Comparison of linear measurements

Measurement of mass

Estimation and measurement of mass using the kilogram

Comparison of mass

Measurement of Capacity

Estimation and measurement of capacity using the litre

Comparison of capacity

Measurement of Temperature

Temperature-related Vocabulary

Comparison of temperature

General Strategies

Selection of units

Problem-solving

1. Estimate and measure lengths and heights of objects using the metre as the unit of measure.
2. Estimate and measure distances using the metre as the unit of measure.
3. Compare two or three linear measurements using phrases such as longer, longest, higher, highest, etc.
4. Estimate and measure the mass of objects using the kilogram as the unit of measure.
5. Describe situations in real life where the kilogram is used as a unit of measure and give reasons for these uses of the unit.
6. Compare the masses of two or three objects using phrases such as heavier, lighter, lightest, etc.
7. Estimate and measure the capacity of containers using the litre as the unit of measure.
8. Compare the capacity of two or three containers using phrases such as 'holds more', 'holds the least', etc.
9. Describe the temperature of an object as warm, 'hot', 'cold', 'tepid', etc.
10. Compare the temperature of two or three objects using phrases such as warmer, hotter, hottest, coldest, etc.
11. Select the appropriate unit to measure length, mass, and capacity.
12. Create and solve problems involving linear measurement and measurement of mass, capacity and temperature.

Time

Problem-solving
Time-related vocabulary
Use of the calendar
Time on the hour, half-hour, and quarter hour

13. Create and solve problems involving time.
14. Use time vocabulary appropriately, e.g., yesterday, today tomorrow, next week, last week, as soon as, etc.
15. Name the days of the week and months of the year.
16. State the number of days in a week and months in a year.
17. State and write the date for the current day. State and write dates of important events, e.g., their birthday, Christmas Day, Independence Day.
18. Tell time on the hour, half hour, and quarter hour in a variety of ways.
19. Represent time on the hour, half hour, and quarter hour.
20. Use the abbreviations 'a.m.' and 'p.m.' correctly.
21. Tell and write the time at which certain events occur, e.g., break time, lunch time.

Money

Problem-solving
Description of the Eastern Caribbean currency
Representing amounts of money
Calculations involving money

22. Create and solve problems involving money.
23. Describe the coins in circulation.
24. Represent amounts up to \$5.00 using coins in a variety of combinations.
25. Describe the \$5, \$10, and \$20 notes.
26. Represent values up to \$20.00 using \$1 coins and notes in a variety of combinations.
27. Find the total value of a combination of notes and coins, up to a value of \$20.00.
28. Read prices of items.
29. Find the total cost of two or three items, up to a total of \$1.00.
30. Calculate change from \$1.00, using counting on.

Number Concepts

Topic

Learning Outcomes

By the end of Grade Two, students should be able to:

General

Use of appropriate strategies for investigating number concepts

Counting

Counting forward and back
Counting on
Skip counting
Number sequences

Whole numbers

Reading and writing numbers
Problem-solving
Place value
Expanded notation
Comparison of numbers

1. Use a calculator, pencil and paper procedures, or mental strategies to investigate number concepts.
2. Explain how they used a selected strategy in carrying out investigations involving number concepts.
3. Count in sequence to 100 and beyond.
4. Describe the patterns that are evident in numbers between 1 and 100 and numbers beyond 100.
5. Count by 2's, 5's, 10's, 20's, and 25's to 100 and beyond.
6. Count on from a given number.
7. Complete a sequence of numbers that involves counting by 2's, 5's, 10's, 20's, and 25's.
8. Read numbers up to 99.
9. Write numbers up to 99 in words and numerals.
10. Create and solve problems involving place value.
11. State the place value of any digit in a two-digit number.
12. Represent a two-digit number in terms of a number of tens and ones using concrete objects and diagrams.
13. State the total value of any digit in a two-digit number.
14. Write two-digit numbers in expanded form.
15. Compare pairs of two-digit numbers using the symbols '<' and '>'.
16. Arrange a set of two-digit numbers in order of magnitude and give reasons for the arrangement.

Fractions

Problem-solving

Unit fractions

Proper fractions

Comparison of fractions

Representation of
fractions

17. Create and solve problems involving fractions of a whole.
18. Identify a unit fraction ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{8}$) of a whole.
19. Compare unit fractions.
20. Represent a unit fraction of a whole.
21. State and write, in words and numerals, the unit fraction that corresponds to a pictorial or concrete representation of a unit fraction of a whole.
22. Identify a fraction of a whole (e.g., $\frac{2}{3}$, $\frac{3}{4}$, etc.).
23. Represent a fraction of a whole, using concrete objects or diagrams.
24. State and write, in words and numerals, the proper fraction that corresponds to a pictorial or concrete representation of a fraction of a whole.
25. Describe real life situations that involve fractions of a whole.

Computation

Topic

Learning Outcomes

By the end of Grade Two, students should be able to:

General

Use of computation strategies

1. Identify and describe situations in which it is appropriate to use mental strategies, pencil and paper procedures, and a calculator to add subtract, multiply or divide whole numbers.
2. Use mental strategies, pencil and paper procedures, or a calculator as appropriate to add, subtract, multiply and divide whole numbers.

Addition of whole numbers

Problem-solving
Basic facts
Addition without and with regrouping
Addition-related vocabulary

3. Create and solve problems involving addition of whole numbers with totals up to 99.
4. Use several strategies to recall the basic facts for addition.
5. Explain their strategies for recalling the basic facts for addition.
6. Add a two-digit number to a one-digit number, without and with regrouping, totals up to 99.
7. Add two two-digit numbers, without and with regrouping, totals up to 99.
8. Carry out addition with numerals presented in a horizontal or vertical format.

Subtraction of whole numbers

Basic facts
Problem-solving
Subtraction without and with regrouping
Subtraction-related vocabulary

9. Create and solve problems involving subtraction of whole numbers with up to two digits.
10. Use several strategies to recall the basic facts for subtraction.
11. Explain their strategies for recalling the basic facts for subtraction.
12. Subtract a one-digit number from a two-digit number, without and with regrouping.
13. Subtract a two-digit number from a two-digit number, without and with regrouping.
14. Explain the procedures they use for addition and subtraction, using appropriate vocabulary such as 'add', 'sum', 'difference', 'minus', etc.
15. Carry out subtraction with numerals presented in a horizontal or vertical format.

Multiplication of whole numbers

Problem-solving
Multiplication-related vocabulary
Multiplication of one-digit numbers
Properties of multiplication
Basic facts

16. Create and solve simple problems involving multiplication.
17. Interpret multiplication statements and number sentences, using terms such as ‘sets of’, ‘times’, ‘product’, etc.
18. Calculate the product of two one-digit numbers, with products up to 60.
19. Explain the properties of multiplication (e.g., any number times 1 equals the number, the product of two numbers is the same even if their order is changed, $3 \times 4 = 4 \times 3 = 12$).
20. Use several strategies (e.g., concrete objects, skip counting, properties of multiplication) to develop the multiplication basic facts for the 2, 3, 5, and 10 times table.

Division of whole numbers

Division as repeated subtraction
Division-related vocabulary

21. Create and solve simple problems involving division.
22. Illustrate division as repeated subtraction, in a variety of ways: using concrete objects, a number line, or numerals.
23. Use appropriate division vocabulary, e.g., number of groups, number of objects in each group, etc.
24. Write number sentences to represent division.

Addition of fractions

Addition of unit fractions
Problem-solving

25. Add two or more unit fractions with like denominator, and totals up to 1.
26. Create and solve problems involving addition of unit fractions.

GRADE THREE

Statistics/Data Management

Topic

Learning Outcomes

By the end of Grade Three, students should be able to:

General

Use of statistics in real life

Data Collection

Use of observation and interviewing
Problem-solving
Planning for data collection: Decisions related to when, where, and how to collect the data

Data representation

Use of tally charts, tables, and graphs
Introduction to scales
Selecting data representation methods

1. Identify and describe situations in everyday life that involve data collection and data representation.
2. State reasons why people collect data.
3. Describe how to collect data using observation.
4. Describe how to collect data using interviewing.
5. Explain when it is appropriate to use observation and interviews to collect data.
6. Create problems that may be answered through data collection, representation and interpretation.
7. Plan for data collection activities.
8. Collect sets of data through observation and interviews to answer questions of interest.
9. Explain the concept of 'tally chart'.
10. Explain how to use tallies to construct a table.
11. Use tally charts and tables to organise collected data.
12. Describe the characteristics of pictographs in which one picture represents one unit of data.
13. Describe the characteristics of pictographs in which one picture represents more than one unit of data.
14. Describe the characteristics of bar graphs in which one block represents one unit of data.
15. Describe the characteristics of bar graphs in which one block represents more than one unit of data.
16. Explain why it may be necessary to use one picture or block to represent more than one unit of data.
17. Select an appropriate method (pictograph or bar graph) and scale to represent a set of collected data.
18. Draw pictographs and bar graphs to represent collected data.
19. Explain the advantages of representing data in tables and graphs.

Interpretation of data

Reading information
presented in tables and
graphs

Answering questions
based on information
presented

20. Read data presented in tables, pictographs, and bar graphs.

21. Interpret data presented in tables, pictographs, and bar graphs.

Geometry

Topic

Learning Outcomes

By the end of Grade Three, students should be able to:

Three-dimensional shapes

Parts of a three-dimensional shape: Faces, edges, and vertices
Concept of a cube, cuboid, cylinder, cone, and sphere
Comparison of cubes and cuboids; cylinders and cones

1. Identify the faces, edges, and vertices of three-dimensional shapes.
2. Describe three-dimensional shapes in terms of the number of edges and vertices, and the number and type of faces.
3. Describe the cube, cuboid, cylinder, cone, and sphere in terms of the number and type of faces and the number of edges and vertices.
4. Sort examples of the cube, cuboid, cylinder, cone, and sphere.
5. Identify and name examples of cubes, cuboids, cylinders, cones, and spheres.
6. Identify the similarities and differences between the cube and cuboid.
7. Identify similarities and differences between the cylinder and cone.

Plane Shapes

Concept of a square, rectangle, triangle, and circle
Line segments
Curves, types of curves
Concept of angle, right angle
Relating angles to the right angle
Drawing two-dimensional shapes
Symmetry

8. Identify and name squares, rectangles, triangles, and circles.
9. Describe squares, rectangles, and triangles in terms of the number and length of their sides.
10. Draw and label line segments e.g., line segment AB.
11. Identify curves and straight line segments.
12. Explain the concepts of 'open curve' and 'closed curve'.
13. Identify and draw open and closed curves.
14. Explain the concepts of angle and right angle.
15. Identify the angles in a diagram.
16. Identify angles that are equal to, greater than, and smaller than a right angle.
17. Describe two-dimensional shapes in terms of the number and length of their sides and the number and type of angles.

18. Draw two-dimensional shapes according to specific directions (e.g., a shape that is closed with one right angle).
19. Identify objects that are symmetrical.
20. Identify and draw the lines of symmetry of a cutout or diagram.
21. Explain what is a line of symmetry.

Measurement

Topic

Learning Outcomes

By the end of Grade Three, students should be able to:

General

Selection of instruments and units of measurement
Use of instruments
Problem-solving

1. Select and use appropriate instruments for measuring lengths, heights, mass, and capacity of objects.
2. Explain how to use the various instruments for measuring length, mass, and capacity.
3. Identify the most appropriate unit to measure the length, mass, or capacity of a given object and give reasons for their selection.
4. Create and solve problems involving linear measurement and measurement of mass, capacity, or temperature.

Linear Measurement

Problem-solving
Estimation and measurement of lengths, heights, and distances
Use of the metre and centimetre as units of measure
Comparison of linear measures

5. Estimate and measure lengths and heights using the metre as the unit of measure.
6. Estimate and measure lengths and heights using the centimetre as the unit of measure.
7. Explain why there is a need for a smaller unit of measure – the centimetre.
8. Estimate and measure distances using the metre as the unit of measure.
9. Compare linear measures of two or three objects.

Measurement of mass

Estimation and measurement of mass using the metre and centimetre
Comparison of the mass of objects

10. Estimate and measure the mass of objects using the kilogram as the unit of measure.
11. Estimate and measure the mass of objects using the gram as the unit of measure.
12. Identify situations in everyday life where the kilogram and gram are used as the units of measure.
13. Compare the mass of two or three objects.

Measurement of capacity

Estimation and measurement of capacity using the litre and centilitre

14. Estimate and measure the capacity of containers using the litre as the unit of measure.
15. Estimate and measure the capacity of containers using the centilitre as the unit of measure.
16. Describe situations in real life where the litre and centilitre are used as units of measure
17. Explain why there is a need for the centilitre as a unit of measurement of capacity.

Measurement of temperature

Instruments for measuring temperature
Reading measurements of temperature
Describing measurements of temperature

18. Describe real life situations that involve measurement of temperature.
19. Describe the instruments that are used to measure temperature.
20. Read recorded temperatures.
21. Describe recorded temperatures using phrases such as 'warm', 'very hot', etc.

Perimeter

Introduction to perimeter
Calculating perimeter by measurement and addition

22. Explain the concept perimeter.
23. Use measurement and addition to calculate the perimeter of objects.

Time

Time-related vocabulary
Problem-solving
Use of the calendar
Time on the hour, half-hour, quarter-hour, and five minute intervals
Relationships between units of time

24. Use appropriate vocabulary in description of real life situations involving time, e.g., earlier, later, now, noon, next week, in a week's time, in an hour, etc.
25. Create and solve problems involving time.
26. State and write dates in a variety of ways.
27. State and write time on the hour, half-hour, quarter hour, and five-minute intervals in a variety of ways.
28. Represent time on the hour, half-hour, quarter hour and five-minute intervals.
29. Use a clock or calendar to determine the duration of an event (e.g., a lesson, assembly, school vacation).
30. State the relationship between units of time: hour and minute, year and month, week and day.

Money

Money-related vocabulary

Problem-solving

Reading and representing
amounts of money

Description of Eastern

Caribbean currency

Calculations involving
money

31. Use appropriate vocabulary to describe situations involving money, e.g., change, total cost, cost per item, etc.
32. Create and solve problems involving money.
33. Read and write amounts of money up to \$999.
34. Identify the coins in circulation.
35. Describe the \$5, \$10, \$20, and \$50 notes.
36. Represent amounts of money up to \$50 using various combinations of notes, \$1 coins, and other coins as necessary.
37. Calculate the cost of a set of similar items given the cost of one item
38. Calculate the total cost of a set of items, with totals up to \$20.
39. Calculate change from amounts up to \$20.

Number Concepts

Topic

Learning Outcomes

By the end of Grade Three, students should be able to:

General

Use of appropriate strategies to investigate number concepts

1. Select an appropriate strategy (calculator, pencil and paper, or mental strategy) to investigate number patterns and relationships.

Counting

Skip counting
Sequences of numbers

2. Count by 2's, 5's, 10's, 20's, 25's, and 100's.
3. Identify the pattern in a sequence of numbers.
4. Complete sequences of numbers.

Whole number concepts

Reading and writing numbers
Place value
Expanded notation
Ordering numbers
Rounding-off numbers
Odd and even numbers
Ordinal numbers
Number-associated vocabulary

5. Create and solve problems involving whole number concepts.
6. Read numbers up to 999.
7. Write numbers up to 999 in words and symbols.
8. Identify the place value and total value of any digit in two- and three-digit numbers.
9. Explain the difference between place value and total value.
10. Write numbers with up to three digits in expanded notation.
11. Arrange a set of two- and/or three-digit numbers in order of magnitude and give reasons for the arrangement.
12. Round off three-digit numbers to the nearest ten or hundred.
13. Round off two-digit numbers to the nearest ten.
14. Explain the concepts of 'even number' and 'odd number'.
15. Classify numbers as odd or even.
16. Describe relationships between odd and even numbers.
17. Define and use number-associated vocabulary, e.g., pair, dozen, double, triple, etc.
18. Identify the ordinal position of an object in an arranged set.
19. Identify the object that is in a given ordinal position in an arranged set.

Fractions

Representation of unit and proper fractions of a whole and a group

Concepts of numerator and denominator

Comparison of fractions

20. Represent fractions of a whole or group, using concrete objects, pictures/diagrams, and numerals.
21. Identify fractions of a whole or group.
22. Explain the concept of a fraction.
23. Explain the concepts of 'numerator' and 'denominator'.
24. Identify the numerator and denominator in a fraction.
25. Compare unit fractions using the symbols '<' and '>'.
26. Compare fractions with like denominators using the symbols '<' and '>'.

Computation

Topic

Learning Outcomes

By the end of Grade Three, students should be able to:

General

Use of computation strategies
Estimation
Checking answers

1. Decide when it is appropriate to carry out computation mentally, using pencil and paper, or using a calculator.
2. Explain how to use a calculator to carry out the four basic operations.
3. Use the calculator to carry out calculations, when necessary.
4. Use mental computation strategies to carry out calculations, when necessary.
5. Estimate the answer to a computation.
6. Determine the reasonableness of answers obtained from any of the four operations on whole numbers, and give reasons for their conclusions.

Whole numbers

Problem-solving
Basic facts
Addition without and with regrouping
Subtraction without and with regrouping
Multiplication by one-digit numbers
Multiplication by 10 and 100
Division as repeated subtraction

7. Create and solve problems involving addition of whole numbers, with totals up to 999.
8. Recall the basic facts for addition and subtraction.
9. Explain the regrouping process for addition.
10. Add numbers with up to three digits, without regrouping.
11. Add numbers with up to three digits, with regrouping in one column/place only.
12. Add numbers with up to three digits, with regrouping in two columns/places.
13. Create and solve problems involving subtraction of numbers with up to three digits.
14. Recall the basic facts for subtraction.
15. Carry out subtraction involving numbers with up to three digits, without regrouping.
16. Carry out subtraction involving numbers with up to three digits with regrouping in one place/column.
17. Carry out subtraction involving numbers with up to three digits with regrouping in two places/columns.
18. Create and solve problems involving multiplication by one-digit numbers.
19. Use several strategies to recall basic facts related to multiplication by 2, 3, 4, 5, and 6.
20. Multiply a two-digit number by 2, 3, 4, 5, 6, 10, and 100, without and with regrouping.

21. Create and solve problems involving division by one-digit numbers.
22. Use several strategies to build up the basic facts for division by 2, 3, 4, 5 and 6.
23. Use repeated subtraction to divide a two-digit number by a one-digit number, without and with remainders.
24. Add two proper fractions with like denominator.
25. Calculate a fraction of a group of objects, using concrete objects or pictures/diagrams.
26. Create and solve problems involving addition of fractions and fractions of a group of objects.

Fractions

Addition of proper
fractions with like
denominator
Problem- solving

GRADE FOUR

Statistics/Data Management

Topic

Learning Outcomes

By the end of Grade Four, students should be able to:

General

Use of statistics in real life

1. Analyse real-life situations that involve data management to identify the questions, data collection methods, and data representation methods that were used.
2. State reasons why people collect data.

Data Collection

Use of observation and interviewing
Introduction to questionnaires
Planning for data collection
Collecting data

3. Describe the characteristics of questionnaires.
4. Prepare simple questionnaires and interviews.
5. Describe procedures for collecting data using observation, interviews, or simple questionnaires.
6. Generate questions that may be answered through data collection, representation and interpretation.
7. Plan data collection activities.
8. Collect data through observation, interviews, or simple questionnaires.

Representation of data

Use of tables and graphs
Selection of appropriate scales for drawing graphs

9. Use tally charts and tables to organise collected data.
10. Select appropriate means (pictograph or bar graph) to represent collected data, and give reasons for their selection.
11. Select appropriate scales for constructing pictographs and bar graphs.
12. Construct pictographs and bar graphs to represent organised data.

Interpretation of data

Reading data presented in tables and graphs
Answering questions based on information presented in tables and graphs

13. Read data represented in tables, pictographs, and bar graphs.
14. Interpret data represented in tables, pictographs, and bar graphs.

Geometry

Topic

Learning Outcomes

By the end of Grade Four, students should be able to:

Three-dimensional shapes

Attributes of cubes, cuboids, cylinders, cones, and spheres
Nets of cubes and cuboids
Making cubes and cuboids

Plane shapes

Angles
Attributes of two-dimensional shapes
Attributes of triangles, squares, rectangles, and circles
Line segments, types of line segments
Types of curves
Concept of a point
Symmetry

1. Identify the relationship between the number of faces, edges, and vertices of cubes and cuboids.
2. Make nets of cubes and cuboids.
3. Construct cubes and cuboids.
4. Create and solve problems based on the attributes of cubes, cuboids, cylinders, cones and spheres.
5. Explain the concepts of angle and right angle.
6. Draw and label angles e.g., angle A.
7. Classify angles according to size, e.g., angles less than a right angle, angles larger than a right angle, angles that are right angles.
8. Identify right angles in two-dimensional and three-dimensional shapes.
9. Describe two-dimensional shapes in terms of number of sides and the number and measure of angles.
10. Classify triangles according to the measure of their angles.
11. Describe the attributes of squares and rectangles.
12. Identify the similarities and differences between squares and rectangles.
13. Explain how squares and rectangles are related.
14. Explain the concepts of radius, diameter, and centre of a circle.
15. Identify the centre of a circle.
16. Identify and draw radii and diameters of a circle.
17. Draw and label line segments (e.g., line segment AB).
18. Identify and draw horizontal and vertical line segments.
19. Identify and draw intersecting lines.
20. Classify curves as simple, open, or closed.
21. Draw curves according to given directions, e.g. simple, open, simple and closed, simple and open, etc.
22. Explain the concept of a point.

23. Represent points.
24. Identify and draw points inside or outside a closed figure.
25. Identify and draw lines of symmetry in an object or diagram.
26. Complete drawings of diagrams that are symmetrical.

Measurement

Topic

Learning Outcomes

By the end of Grade Four, students should be able to:

General

Problem solving
Use of measurement instruments
Selection of instruments and units of measurement
Recording measurements

1. Create and solve problems involving measurement.
2. Explain how to use various instruments of measurements (ruler, scale, etc.)
3. Select the most appropriate instrument to measure an object.
4. Select the most appropriate unit to measure an object.
5. Read and record measurements using appropriate notation.

Linear Measurement

Estimation and measurement using the metre, centimetre, and millimetre
Relationships between units
Scale drawings

6. Estimate and measure lengths and heights of objects using the metre and/or centimetre as the unit of measure.
7. Draw a line segment of a given length in centimetres.
8. Measure line segments and curves using the centimetre as the unit of measure.
9. Justify the need for the millimetre as a unit of measure.
10. Estimate and measure lengths of objects using the millimetre as the unit of measure.
11. State the relationship between the millimetre and centimetre, and the millimetre and metre.
12. Compare the length or height of objects given their measurement in the same or different units,
13. Explain what is a scale drawing and how scale drawings are used in real life.
14. Use scale drawings (e.g. maps) to determine distances in kilometres or metres.

Measurement of mass

Estimation and measurement using the kilogram, gram, and milligram
Relationships between units

15. Estimate and measure the mass of objects using kilograms and grams.
16. Justify the need for milligrams as a unit of mass.
17. Describe situations in real life where the milligram is used as a unit of measure.
18. Estimate and measure the mass of objects in milligrams.
19. State the relationship between the milligram and gram, kilogram and gram.

20. Compare the mass of objects given their measurement of mass in the same or different units.

Measurement of

Capacity

Estimation and measurement using the litre, centilitre, and millilitre as units of measure
Relationships between units

21. Estimate and measure the capacity of containers in litres or centilitres.
22. Justify the need for the millilitre as a unit of measure of capacity.
23. Estimate and measure the capacity of containers using the millilitre as the unit of measure.
24. Describe situations in real life where the millilitre is used as a measurement of capacity.
25. State the relationship between the millilitre and centilitre, the millilitre and litre.
26. Compare the capacity of containers given their measurement of capacity in the same or different units.

Measurement of

temperature

Recording and reading temperatures
Temperatures related to common everyday situations

27. Read recorded temperatures.
28. Identify the scales that are used to measure temperature.
29. Measure their body temperature and the temperature of liquids.
30. Indicate and write temperatures associated with real life situations. (e.g. normal body temperature; freezing and boiling points of water; oven temperature for baking a cake etc.)

Perimeter and area

Calculation of perimeter
Introduction to the concept of area
Area by counting squares

31. Calculate the perimeter of a two-dimensional shape.
32. Explain the concept of area.
33. Find the area of two-dimensional shapes by counting squares.

Time

Telling and representing time
Time-related vocabulary
Relationships between measures of time
Duration between events
Time between events

34. Tell and write the time on the hour, half hour, quarter hour, and 5-minute intervals in a variety of ways.
35. Tell and write time using one-minute intervals in a variety of ways.
36. Represent a given time on an analog or digital clock.
37. State and write dates in a variety of ways.
38. Use time-related vocabulary to describe real life situations: e.g. anniversary, decade, century, millennium, and leap year.

39. State the relationship between measures of time: e.g., week and day, day and year, year and month, hour and minute.
40. Estimate and measure the duration of an event and the time between two events.
41. Calculate the duration of an event, and the time between two events.

Money

Description of Eastern
Caribbean currency
Representing amounts of
money
Calculations involving
money
Money-related vocabulary

42. Describe the notes and coins in circulation.
43. Read and write amounts of money up to \$9999.99.
44. Represent amounts of money up to \$100 using various combinations of notes and coins.
45. Calculate the total cost of a set of items, given the price per item or the price of a multiple of items.
46. Calculate change from amounts up to \$50.
47. Fill in bank deposit and withdrawal slips.
48. Use vocabulary associated with money and spending: e.g. sale, per, each, for each, discount, \$--- off, expensive, cheap etc.

Number Concepts

Topic

Learning Outcomes

By the end of Grade Four, students should be able to:

General

Problem solving
Investigative strategies

1. Create and solve problems involving place value, factors, multiples, and fractions.
2. Use appropriate strategies (pen and paper computation, mental computation, or a calculator) to investigate number concepts.

Counting

Counting forwards and backwards
Skip counting
Counting on
Sequences of numbers

3. Count in a variety of ways: counting forward, counting backwards, skip counting, counting on.
4. Identify the pattern in a sequence of numbers.
5. Complete sequences of numbers.
6. Generate number sequences.

Whole number concepts

And writing numbers
Place value
Expanded notation
Factors and multiples
Primes and composites
Least common multiple
Rounding off
Ordinal numbers

7. Read numbers, up to 9 999.
8. Write numbers up to 9 999 in words and numerals.
9. Identify the place value and total value of any digit in numbers up to 9 999.
10. Write numbers up to 9 999 in expanded notation.
11. Arrange a set of two-, three-, and/or four-digit numbers in order of magnitude.
12. Explain the meaning of factors and multiples.
13. Generate multiples of a given number.
14. List the factors of a given number.
15. Explain the concepts of prime number and composite number.
16. Identify prime numbers and composite numbers.
17. Classify numbers in a variety of ways, e.g., as primes, composite, odd, and/or even.
18. Find the least common multiple of two or three whole numbers, by listing multiples.
19. Find the highest common factor of two or three numbers by listing factors.
20. Round off two-, three-, or four-digit numbers to the nearest 10.

21. Round off three- or four-digit numbers to the nearest 100.
22. Identify the ordinal position of an object in an arrangement.
23. Identify the object that corresponds to a given ordinal position in an arrangement.

Fractions

Representing unit and proper fractions
 Comparing and sequencing fractions
 Improper fractions and mixed numbers
 Equivalent fractions

24. Identify unit and proper fractions of a whole or group of objects.
25. Represent unit and proper fractions of a whole or group of objects.
26. Sequence unit fractions in order of magnitude.
27. Compare proper fractions with like denominator.
28. Sequence proper fractions with like denominator in order of magnitude.
29. Compare fractions with unlike but related denominators.
30. Sequence fractions with unlike but related denominators in order of magnitude.
31. Explain the concepts of improper fractions and mixed numbers.
32. Identify improper fractions and mixed numbers.
33. Convert improper fractions to mixed numbers and mixed numbers to improper fractions, using concrete objects and pictures/diagrams.
34. Generate sets of fractions that are equivalent to a given fraction.
35. Explain the meaning of the term 'equivalent fractions'.

Computation

Topic

Learning Outcomes

By the end of Grade Four, students should be able to:

General

Computation-related vocabulary
Relationships among the four basic operations
Checking the reasonableness of answers
Computation strategies

1. Use computation vocabulary (e.g., sum, product, total, etc.) to describe situations that involve any of the four basic operations.
2. Explain the relationships that exist among the four basic operations.
3. Explain strategies that may be used to determine the reasonableness of answers.
4. Determine the reasonableness of an estimated or exact answer to a computation, and justify their conclusion.
5. Explain mental computation strategies that may be used in calculations involving addition, subtraction, multiplication or division.
6. Explain pencil and paper computation procedures that may be used in calculations involving addition, subtraction, multiplication, and division.
7. Explain how to use a calculator to carry out addition, subtraction, multiplication, or division.
8. Select an appropriate computation strategy (mental computation, use of pencil and paper, or use of a calculator) to carry out addition, subtraction, multiplication, or division.

Computation involving whole numbers

Problem solving
Basic facts
Addition without and with regrouping
Subtraction without and with regrouping
Multiplication by one- and two-digit numbers
Division by one-digit numbers
Calculations involving brackets

9. Create and solve problems involving addition, subtraction, multiplication, and/or division.
10. Recall the basic facts for addition and subtraction.
11. Use several strategies to recall the basic facts for multiplication and division.
12. Add numbers with up to four digits without regrouping.
13. Add numbers with up to four digits with regrouping in one place/column only.
14. Add numbers with up to four digits with regrouping in two places/columns.
15. Add numbers with up to four digits with regrouping in three places/ columns.
16. Carry out subtractions involving numbers with up to four digits, without regrouping.

17. Carry out subtraction involving numbers with up to four digits, with regrouping in one place/column only.
18. Carry out subtraction involving numbers with up to four digits with regrouping in two places/columns.
19. Carry out subtraction involving numbers with up to four digits, with regrouping in three places/columns.
20. Explain the regrouping process for addition and subtraction.
21. Multiply a two-digit number by a one-digit number, with and without regrouping.
22. Multiply a two-digit number by a two-digit number.
23. Divide a two-digit number by a one-digit number, with and without remainder.
24. Divide a three-digit number by a one-digit number, without and with remainder.
25. Explain the meaning of the remainder in division.
26. Carry out calculations involving brackets and several operations.

Computations
involving fractions

Addition of proper fractions
Subtraction of proper fractions
Multiplication of proper fractions and whole numbers

27. Add a fraction to a whole number.
28. Add two proper fractions with like denominators.
29. Add two proper fractions with unlike but related denominators, using concrete objects and pictures/diagrams.
30. Carry out subtraction involving two proper fractions with like denominators, no regrouping;
31. Carry out subtraction involving two proper fractions with unlike but related denominators, no regrouping, using concrete objects and pictures/diagrams.
32. Multiply a fraction by a whole number, using concrete objects and pictures/diagrams.
33. Multiply a whole number by a proper fraction, using concrete objects and pictures/diagrams.

GRADE FIVE

Statistics/Data Management

Topic

Learning Outcomes

By the end of Grade Five, students should be able to:

General

Use of Statistics in real life
Problem solving

1. Identify and describe situations where data collection, representation, and interpretation could be used to solve problems.
2. Create problems whose solutions require data collection, representation, and/or interpretation.
3. Solve problems involving data collection, representation and/or interpretation.

Data Collection

Use of observation, interviews, and questionnaires
Selection of appropriate data collection methods
Planning data collection activities: Decisions related to when, where, and how to collect data

4. Describe procedures for collecting data using observation, interview, or simple questionnaires.
5. Identify similarities and differences between interviews and questionnaires.
6. Explain when it is appropriate to use interviews and questionnaire to collect data.
7. Select the data collection method that is appropriate for a particular problem situation, and give reasons for their selection.
8. Plan data collection activities.
9. Collect data using observation, interviews, or simple questionnaires.

Representation of data

Selection of appropriate methods and scales
Use of tables and graphs
Introduction to line graphs
Comparison of bar graphs and line graphs

10. Select appropriate methods to represent data.
11. Select appropriate scales to represent data graphically.
12. Explain why a selected data representation method or scale is appropriate.
13. Use tally charts and tables to organise collected data.
14. Represent data using pictographs or bar graphs.
15. Describe the characteristics of line graphs.
16. Identify similarities and differences between bar graphs and line graphs.
17. Explain when it is appropriate to use bar graphs and line graphs to represent data.

Interpretation of data

Identifying information
included in tables and
graphs
Answering questions
based on the data
represented in tables and
graphs

18. Read data presented in tables, pictographs, bar graphs, and line graphs.
19. Interpret data presented in tables, pictographs, bar graphs, and line graphs.
20. Calculate the mean/average of a set of data.

Geometry

Topic

Learning Outcomes

By the end of Grade Five, students should be able to:

Three-dimensional shapes

Attributes of three-dimensional shapes
Use of three-dimensional shapes in real life
Nets of cubes, cuboids and cylinders
Construction of cubes, cuboids, and cylinders

1. Describe three-dimensional shapes in terms of the number and type of faces and the number of edges and vertices.
2. Generate and test hypotheses for the purposes of identifying three-dimensional shapes that are appropriate for particular functions in real life.
3. Use the attributes of a three-dimensional shape to formulate reasons for its uses in everyday life.
4. Identify and describe cubes, cuboids, cylinders, cones and spheres.
5. Make nets of cubes, cuboids, and cylinders.
6. Identify nets that will form a cube, cuboid, or cylinder.
7. Construct cubes, cuboids, and cylinders.

Plane shapes

Types of angles
Types of line segments
Attributes of two-dimensional shapes
Parts of a circle
Congruency
Introduction to co-ordinate systems

8. Identify angles in three-dimensional and plane shapes.
9. Draw and label angles (e.g., angle A).
10. Explain what is a right angle.
11. Classify angles according to size, as equal to, larger than, or smaller than a right angle.
12. Describe acute and obtuse angles.
13. Identify acute and obtuse angles.
14. Draw and label line segments (e.g., line segment AB).
15. Explain the concepts of horizontal, vertical, parallel, and perpendicular lines.
16. Identify horizontal and vertical line segments.
17. Draw horizontal and vertical line segments.
18. Identify parallel and perpendicular lines.
19. Draw parallel and perpendicular lines.
20. Describe two-dimensional shapes in terms of the number and type of angles and sides.
21. Explain the concept of 'circumference of a circle'.
22. State the relationship between radii and diameters of circles.
23. Draw circles and identify the following parts: circumference, radius, diameter, centre.

24. Identify two-dimensional shapes that have the same size and shape.
25. Explain the concept of 'congruent figures'.
26. Classify two-dimensional shapes using a variety of attributes: e.g., open, closed, symmetrical, congruent, the number and type of angles and sides, etc.
27. Explain how various groups of persons (e.g., artists, craftpersons, and builders) use geometric concepts such as angles, symmetry, congruency, etc.
28. Create and solve problems involving plane shapes.

29. Describe a simple co-ordinate system with only positive numbers.
30. Plot points on a simple co-ordinate system with only positive numbers.
31. Identify points on a simple co-ordinate system.
32. Create and solve problems involving simple co-ordinate systems.

Measurement

Topic

Learning Outcomes

By the end of Grade Five, students should be able to:

General

Selection of instruments and units of measurement
Reading and recording measurements

1. Select the most appropriate instrument to estimate and measure a length, the mass, or the capacity of a given object.
2. Select the most appropriate unit to estimate and measure a length, the mass, or the capacity of a given object.
3. Read and record estimates and measurements using appropriate notation.

Linear measurement

Problem solving
Use of the kilometre, metre, centimetre, and millimetre as units of measure
Scale drawings

4. Estimate and measure lengths and heights using the metre, centimetre, and/or millimetre as the units of measure.
5. Estimate and measure distances using the metre and/or centimetre as the units of measure.
6. Identify and interpret the scale that was used in a scale drawing.
7. Use scale drawings to determine actual measurements in metres or kilometres.
8. Make simple scale drawings.
9. Create and solve problems involving linear measurement.

Measurement of mass

Use of the kilogram, gram, and milligram as units of measure
Problem solving

10. Estimate and measure the mass of objects using kilograms, grams, and/or milligrams as the units of measure.
11. Create and solve problems involving mass.

Measurement of capacity

Use of the litre, centilitre, and millilitre as units of measure
Problem solving

12. Estimate and measure the capacity of containers using litres, centilitres, and/or millilitres as the units of measure.
13. Create and solve problems involving capacity.

Measurement of temperature

Use of the Celsius scale

Relationships among metric units

Relationships among units of measure of the same attribute

Recording measurements

Simple conversions

Imperial units

Estimation and measurement using common imperial units
Use of imperial units in real life

Perimeter and area

Problem solving

Perimeters of two-dimensional shapes

Development of the formula for finding the area of a square or rectangle

Development of the formula for finding the area of triangles

Time

Use of the 12-hour and 24-hour clock

Use of analog and digital clocks

Problem solving

14. Estimate and measure temperatures using the Celsius scale.

15. Explain the relationships that exist among metric units of measure of the same attribute. (E.g., 1 00 cm = 1 m; 1 l = 1 000 ml, 1 Kg = 1 000 g etc.)

16. Use the relationships among the metric units to carry out simple conversions involving measurements of the same attribute.

17. Use the relationships among metric units to record measurements. (E.g., a measurement of 2 m 85 cm could be written as 2.85m)

18. Estimate and measure the length, mass, or capacity of objects using common Imperial units, e.g., the yard, pound, quart, pint.

19. Explain why metric and Imperial units are used in real life.

20. Create and solve problems involving perimeter or area.

21. Calculate the perimeter of a two-dimensional shape.

22. Identify appropriate units for the measurement of small and large areas.

23. Calculate the area of a rectangle or square by using the formula, Area = length x width.

24. Calculate the area of irregular figures that are comprised of squares, and/or rectangles.

25. Sketch squares, rectangles, or irregular figures with a given area and/or perimeter.

26. Tell and write time using the 12- hour and 24-hour clock.

27. Represent time on an analog or digital clock.

28. Create and solve problems involving duration of an event, time between events, starting time, finishing time, and relationships between units of time.

Money

Problem solving

Representing amounts of money

Calculations involving money

Introduction to the concepts of cost price, selling price, profit, and loss

29. Create and solve problems involving money.
30. Read and write amounts of money up to \$99 999.
31. Describe situations that involve the use of large amounts (thousands) money.
32. Describe the role of cheques in transactions involving money.
33. Represent amounts of money in a variety of ways.
34. Calculate the total cost of a set of items, given the cost of one item and/or the cost of multiples of items.
35. Make up bills.
36. Calculate change.
37. Explain the concepts of cost price, selling price, profit, loss, and discount.
38. Use the concepts of cost price, selling price, profit, loss, and discount in descriptions of situations involving buying and selling.

Number Concepts

Topic

Learning Outcomes

By the end of Grade Five, students should be able to:

Counting

Counting on
Counting backward
Skip counting
Sequences of numbers

1. Count in a variety of ways: counting on, counting backwards, skip counting.
2. Complete sequences of numbers.

Whole number concepts

Problem solving
Representing numbers
Place value
Expanded notation
Types of numbers
Factors and multiples
H.C.F. and L. C. M.
Rounding off
Ordering numbers

3. Create and solve problems involving factors and multiples of whole numbers.
4. Read numbers up to 99 999.
5. Write numbers up to 99 999 in words and numerals.
6. Identify the place and total value of any digit in a number with up to five digits.
7. Write numbers with up to five digits in expanded notation.
8. Classify numbers using several number concepts: e.g., prime, odd, prime and even, prime and odd, composite and odd, etc.
9. Explain how the various types of numbers (prime, composite, odd, etc) are related.
10. List multiples of a given number.
11. List factors of a given number.
12. Explain the concept of prime factor.
13. Write a number as a product of its prime factors.
14. Calculate the least common multiple of two or three numbers by listing multiples or using prime factorisation.
15. Explain the concept of 'highest common factor'.
16. Find the highest common factor of two or three numbers by listing factors or prime factorisation.
17. Round off numbers with up to five digits to the nearest ten, hundred, or thousand.
18. Round off numbers with up to three digits to the nearest ten or hundred.
19. Arrange a set of whole numbers in order of magnitude.

Fractions

Representation of fractions
Mixed numbers and improper fractions
Equivalent fractions
Least common denominator
Ordering fractions

20. Use diagrams/pictures to represent unit, proper, and improper fractions and mixed numbers.
21. Convert an improper fraction to a mixed number and a mixed number to an improper fraction.
22. Explain the concept of 'lowest terms' and its relationship to equivalent fractions.
23. Express fractions in their lowest terms.
24. Generate fractions that are equivalent to a given fraction.
25. Calculate the least common denominator for fractions with unlike but related denominators.
26. Arrange a set of fractions in order of magnitude.

Decimals

The relationship between decimals and whole numbers
Place value and total value
Representation of decimals
Ordering decimals
The relationship between fractions and decimals
Simple conversions involving decimals and fractions

27. Explain how decimal numbers and whole numbers are related.
28. Identify the place and total value of the digits in a decimal number with up to two decimal places.
29. Represent simple decimal numbers with up to two decimal places (e.g., 1.5, 2.21) using diagrams.
30. Read and write decimal numbers with up to two decimal places.
31. Arrange a set of decimal numbers with up to two decimal places in order of magnitude.
32. Explain how fractions and decimals are related.
33. Write a decimal number as a fraction.
34. Write a fraction as a decimal number.

Percents

The concept of percent
The use of percents in everyday life
Representation of percents
The relationship between fractions, decimals, and percents
Problem solving

35. Explain the concept of percent.
36. Represent a given percent using pictures/diagrams and symbols.
37. Explain the meaning of a given percent (e.g., 10 % or 10 percent).
38. Describe and analyse situations in real life that involve percents.
39. Explain the relationship between fractions, decimals, and percents.
40. Express a percent as a decimal or fraction.
41. Express simple proper fractions and decimals as percents.
42. Create, solve, and analyse problems involving fractions, decimals, and percents.

Roman numerals

The use of Roman numerals in real life situations

Representation of Roman numerals

43. Identify real life situations that involve the use of Roman numerals (e.g., the numbers on clocks and watches, numbering of chapters in a book).
44. State the Roman numerals for 1, 5, and 10.
45. Explain how the Roman numerals for 1, 5, and 10 should be used to form other Roman numerals between 2 and 12 inclusive.
46. Identify and write Roman numerals for numbers from 1 to 12.

Computation

Topic

Learning Outcomes

By the end of Grade Five, students should be able to:

General

Computation-related vocabulary
Relationships among the four basic operations
Checking the reasonableness of answers
Computation strategies

1. Use computation vocabulary (e.g., sum, product, total, etc.) to describe situations that involve any of the four basic operations.
2. Explain the relationships that exist among the four basic operations.
3. Explain the likely effects of an operation.
4. Estimate the answer to a computation.
5. Determine the reasonableness of an estimated or exact answer to a computation, and justify their conclusion.
6. Explain mental computation strategies that may be used in calculations involving addition, subtraction, multiplication or division.
7. Explain pencil and paper computation procedures that may be used in calculations involving addition, subtraction, multiplication, and division.
8. Explain how to use a calculator to carry out addition, subtraction, multiplication, or division.
9. Select an appropriate computation strategy (mental computation, use of pencil and paper, or use of a calculator) to carry out any of the four basic operations.

Whole numbers

Basic facts
Problem solving
Addition without and with regrouping
Subtraction without and with regrouping
Multiplication by one-and two-digit numbers
Division by one-and two-digit numbers

10. Recall the basic facts for addition subtraction, multiplication, and division of whole numbers.
11. Create and solve problems involving addition, subtraction, multiplication and/or division of whole numbers.
12. Add sets of numbers with totals up to 99 999, without and with regrouping.
13. Carry out subtraction involving whole numbers with up to five digits, without and with regrouping.
14. Multiply two and three-digit numbers by one- and two-digit numbers.
15. Divide whole numbers with up to five digits by one- and two-digit numbers, without and with remainder.

Fractions

Problem solving

Addition of proper fractions

Addition of proper fractions and whole numbers

Addition of proper fractions and mixed numbers

Subtraction of proper fractions

Subtraction of proper fractions from whole numbers and mixed numbers

Multiplication of proper fractions and whole numbers

Division of proper fractions by whole numbers

16. Create and solve problems involving addition, subtraction, or multiplication of fractions.
17. Add proper fractions with like or unlike but related denominators.
18. Add a whole number to a proper fraction.
19. Add a proper fraction and a mixed number with like denominators.
20. Add a proper fraction and a mixed number with unlike but related denominators.
21. Carry out subtraction involving proper fractions with like denominators.
22. Carry out subtraction involving proper fractions with unlike but related denominators.
23. Subtract a proper fraction from a mixed number with like denominator, without regrouping.
24. Subtract a proper fraction from a mixed number with unlike but related denominator, without regrouping.
25. Subtract a proper fraction from a whole number.
26. Multiply a proper fraction by a whole number.
27. Multiply a whole number by a proper fraction.
28. Multiply two proper fractions.
29. Divide a proper fraction by a whole number.

Decimals

Problem solving

The relationship between computation procedures for whole numbers and decimals

Addition without and with regrouping

Subtraction without and with regrouping

Multiplication by a one-digit number

30. Create and solve problems involving addition, subtraction, and multiplication of decimal numbers.
31. Explain how computation procedures for whole numbers can be applied to decimal numbers.
32. Add decimal numbers with up to two decimal places, without and with regrouping.
33. Carry out subtraction involving decimal numbers with up to two decimal places, without and with regrouping.
34. Multiply a decimal number with up to two decimal places by a one-digit number.

Percents

Problem solving

Calculating percents

Profit and loss

35. Create and solve problems involving percents.
36. Calculate a percent of a number.
37. Express one number as a percent of another.
38. Calculate profit or loss, given the cost price and selling price of an article.
39. Calculate profit or loss as a percent of the cost price of an article.

GRADE SIX

Statistics/Data Management

Topic

Learning Outcomes

By the end of Grade Six, students should be able to:

General

Problem solving

1. Create and solve problems whose solutions require data collection, representation, and interpretation.

Data Collection

Use of observation, interviews, and questionnaires
Selection of data collection methods
Planning for data collection

2. Describe procedures for collecting data through observation, interview, and the use of questionnaires.
3. Select appropriate means (observation, interview, questionnaire) of collecting data for a particular problem situation and give reasons for their selection.
4. Plan data collection activities.
5. Collect data through observation, interviews, or the use of questionnaires.

Data representation

Selection of appropriate methods of data representation
Selection of appropriate scales
Drawing tables and graphs

6. Select appropriate methods (table, pictograph, bar graph, or line graph) to represent data, and give reasons for their selection.
7. Select appropriate scales for representing data in pictographs, bar graphs, and line graphs and give reasons for their choice scale.
8. Represent data using tables, pictographs, bar graphs, or line graphs.

Interpretation of data

Reading data presented in tables and graphs
Answering questions based on the presented data
Calculating the mean/average
Identifying the mode
Interpreting values of the mean and mode

9. Read and interpret data presented in tables, pictographs, bar graphs, and line graphs.
10. Explain the concepts of mean and mode.
11. Calculate the mean/average of a set of data.
12. Identify the mode of a set of data.
13. Interpret values of the mean and mode.
14. Make inferences from the data presented in tables and graphs.

Geometry

Topic

Learning Outcomes

By the end of Grade Six, students should be able to:

Three-dimensional shapes

Attributes of three-dimensional shapes
Drawing three-dimensional shapes
Drawing and making nets of cubes, cuboids, cylinders, and cones
Constructing cubes, cuboids, cylinders, cones, and spheres
Use of three-dimensional shapes in real life

1. Describe three-dimensional shapes in terms of the number and type of faces, and the number of vertices and edges.
2. Identify cubes, cuboids, cylinders, cones, and spheres by name.
3. Classify three-dimensional shapes in a variety of ways, e.g., according to their shape the shape of their faces, the number of edges, etc.
4. Select and use their own criteria to classify three-dimensional shapes.
5. Explain the criteria they used to classify three-dimensional shapes.
6. Draw sketches of three-dimensional shapes from different perspectives, e.g., looking down on the shape, looking at it at eye level.
7. Draw and make nets of cubes, cuboids, cylinders, and cones.
8. Identify the nets that will form cubes, cuboids, cylinders, and cones.
9. Construct cubes, cuboids, cylinders, cones, and spheres.
10. Identify three-dimensional shapes that would be appropriate for performing given functions in real life, e.g., storing toys.

Plane shapes

Attributes of two-dimensional shapes
Classification of two-dimensional shapes
Drawing two-dimensional shapes
Attributes of squares, rectangles, triangles, and circles
Classification of triangles
Points, line segments
Types of angles
Simple co-ordinate systems

11. Describe two-dimensional shapes in terms of the number and type of sides and angles.
12. Classify two-dimensional shapes in a variety of ways using geometric concepts such as symmetry, congruency, closed figures, perpendicular lines, parallel lines, as well as the number and type of sides and angles.
13. Select and use their own criteria to classify two-dimensional shapes.
14. Explain the criteria that they used to classify two-dimensional shapes.
15. Draw two-dimensional shapes according to directions that are based on geometric concepts and the properties

of the shapes, e.g., symmetry, type of figure (open or closed), the number of sides, type of sides (parallel or perpendicular), etc.

16. Identify triangles, squares, rectangles, and circles.
17. Describe the attributes of the following geometric shapes: triangle, square, rectangle, and circle.
18. Sort and name triangles according to the length of their sides and the size of their angles (e.g., isosceles, equilateral, and acute angled triangles).
19. Describe the characteristics of each group/type of triangles.
20. Represent and label a point.
21. Draw and label line segments.
22. Identify and label angles.
23. State the number of degrees associated with a right angle.
24. Identify acute angles and obtuse angles.
25. Explain the concepts of 'acute angle' and 'obtuse angle'.

26. Plot points on a co-ordinate system.
27. Identify points on a co-ordinate system.
28. Identify and describe examples of geometric ideas that are used in everyday life.

Measurement

Topic

Learning Outcomes

By the end of Grade Six, students should be able to:

General

Selection of units and instruments
Recording measurements
Converting from one unit to another

1. Select the most appropriate unit to estimate and measure a length, the mass, or the capacity of a given object and give reasons for their choice of unit.
2. Select the most appropriate instrument to measure a length, the mass, or the capacity of a given object, and give reasons for their choice of instrument.
3. Explain how to use instruments for measuring length, mass, capacity, and temperature.
4. Record estimates and measurements of length, mass, capacity, and temperature using appropriate notation.
5. Use the relationships among the units to carry out simple conversions involving units of measure of the same attribute.

Linear Measurement

Problem solving
Use of the kilometre, metre, centimetre, and millimetre as units of measure
Scale drawings

6. Create and solve problems involving linear measurement.
7. Estimate and measure the lengths and heights of objects using the metre, centimetre, and/or millimetre as the units of measure.
8. Estimate and measure distances using the metre and/or centimetre as the units of measure.
9. Estimate and describe distances using the kilometre as the unit of measure.
10. Use simple scale drawings to determine actual distances.
11. Represent actual distances using scale drawings.

Measurement of mass

Problem solving
Use of the tonne, kilogram, gram, and milligram as units of measure

12. Create and solve problems involving measurement of mass.
13. Estimate and measure the mass of objects using the kilogram, gram, and/or, milligram as the units of measure.
14. Use the tonne as a unit of measure to describe the mass of large or very heavy objects.

Measurement of capacity

Problem solving
Use of the litre, centilitre, and millilitre as units of measure

15. Estimate and measure the capacity of containers using the litre, centilitre, and/or millilitre as the units of measure.
16. Create and solve problems involving measurement of capacity.

Imperial units

Relationships between imperial units and metric units

17. State the relationship between metric units of length, mass, and capacity and common imperial units. (E.g., A metre is a little more than a yard. 1 Kg is approximately 2.2 lbs., 1 teaspoon is approximately 5 ml.)
18. Describe situations where they may be able to use the relationships between Imperial and metric units of measurement.

Measurement of temperature

Use of the Fahrenheit and Celsius scales

19. Read temperatures using the Fahrenheit and Celsius scales.
20. Compare temperatures using the Celsius and Fahrenheit scales. (E.g., the freezing point of water is 0 degrees Celsius but 32 degrees Fahrenheit.)

Time

Use of the 12-hour and 24-hour clock
Time notation
Introduction to average speed
Problem solving

21. Tell time using the 12-hour and 24-hour clock.
22. Record and read measurements of time using a variety of time notations.
23. Create and solve problems involving time: e.g., intervals of time, duration of events, starting and finishing times of events.
24. Explain the concept of average speed.
25. Explain the relationships that exist among distance, average speed, and time, e.g., average speed x travel time = the distance travelled.
26. Create and solve problems involving distance, speed, and time.

Perimeter and area

Perimeter of two-dimensional shapes
Area of right-angled triangles, squares and rectangles
Area of irregular shapes
Problem solving

27. Calculate the perimeter of two-dimensional shapes.
28. Calculate the area of squares and rectangles using appropriate formulae.
29. Calculate the area of irregular figures that are comprised of squares, and/or rectangles.
30. Calculate the length of a side of a square or rectangle given appropriate information (e.g., the area and/or perimeter, lengths of sides).
31. State the relationship between the area of a rectangle and the area of a triangle.
32. Calculate the area of right-angled triangles using the formula, $\text{Area} = \frac{1}{2} \text{base} \times \text{perpendicular height}$.
33. Sketch squares, rectangles, triangles or irregular figures with a given area and/or perimeter.
34. Create and solve problems involving perimeter and/or area.

Money

Representation of amounts of money
Use of money in real life
Foreign currency
Problem solving

35. Write and read amounts of money up to the millions.
36. Describe situations that involve large amounts of money.
37. Read and interpret the rates of exchange for common foreign currencies (e.g., US dollar, pound sterling, Barbados dollar).
38. Convert foreign currencies to Eastern Caribbean currency.
39. Convert Eastern Caribbean currency to foreign currencies.
40. Create and solve problems involving money, e.g., total cost of items, determining change.

Measurement of

angles

Use of a protractor
Drawing angles
Estimating and measuring the size of angles

41. Explain how to use a protractor to measure and draw angles.
42. Draw angles of a given size.
43. Estimate and measure the size of angles.

Number Concepts

Topic

Learning Outcomes

By the end of Grade Six, students should be able to:

General

Problem solving
Strategies for investigating
number concepts

1. Create and solve problems involving number concepts.
2. Use appropriate strategies (mental computation, pencil and paper, or calculators) to investigate number concepts and solve problems.
3. Explain the strategies and procedures they used in carrying out investigations and solving problems involving number concepts.

Counting

Use of a variety of
counting strategies
Sequences of numbers

4. Count in a variety of ways up to a given number, e.g., counting backward, skip counting, counting on.
5. Complete sequences of numbers.

Whole numbers

Place value
Expanded notation
Representation of numbers
Ordering numbers
Rounding off numbers
Number-related
vocabulary
Types of numbers
Factors, multiples
H.C.F. and L.C.M.

6. Identify the place value and total value of the digits in whole numbers with up to seven digits.
7. Read the numerals for whole numbers with up to seven digits.
8. Write numbers with up to seven digits in words and numerals.
9. Write numbers with up to seven digits in expanded notation.
10. Arrange a set of whole numbers in order of magnitude.
11. Round off whole numbers to the nearest ten, hundred, or thousand.
12. Describe situations (e.g., government projects) that involve the use of very large (e.g., a million) numbers.
13. Compare two numbers using verbal number phrases such as: 'more than', 'less than', 'twice', 'thrice', 'twice more than', 'as much as', etc.
14. Explain the meaning of verbal number phrases such as 'more than', 'less than', 'twice', 'thrice', 'twice more than', 'as much as', etc. as used in given situations.

15. Classify numbers in a variety of ways, using number concepts such as square, prime, composite, odd, even, factors, multiples, etc.
16. List the factors of numbers up to 100.
17. Prime-factorise composite numbers up to 100.
18. Calculate the highest common factor of two or three numbers.
19. Generate multiples of whole numbers.
20. Calculate the lowest common multiple of two or three numbers, using listing of multiples or prime factorisation.

Fractions

Representation of fractions
 Equivalent fractions
 Ordering fractions
 Lowest common denominator

21. Represent fractions using diagrams/pictures and numerals.
22. Identify fractions that are equivalent.
23. Generate fractions that are equivalent to a given fraction.
24. Express proper fractions in their lowest terms.
25. Convert an improper fraction to a mixed number and a mixed number to an improper fraction.
26. Arrange a set of fractions with like denominators in order of magnitude.
27. Arrange a set of fractions with unlike but related denominators in order of magnitude.
28. Calculate the lowest common denominator of two or three fractions.

Decimals

Place value
 Representation of decimal numbers
 Rounding off decimal numbers
 Equivalent decimals
 Use of the relationship between fractions and decimals

29. Identify the place value and total value of the digits in decimal numbers with up to two decimal places.
30. Write and read decimal numbers with up to two decimal places.
31. Round off decimal numbers with up to two decimal places to the nearest whole number, tenth, or to 1 decimal place.
32. Identify decimals that represent the same quantity, e.g., 1.6 and 1.60.
33. Write a decimal number as a fraction and a fraction as a decimal number.
34. Arrange a set of decimals in order of magnitude.

Percents

The concept of percent
Use of percents in real life
Representation of percents
as fractions and decimals

35. Explain the concept of percent.
36. Explain the meaning of percents, including percents larger than 100%, given a real life situation e.g., profit or increase in bank accounts.
37. Represent a percent as a fraction or decimal.
38. Represent simple fractions and decimals as percents.

Ratio

Vocabulary related to
ratios
The concept of ratio
Representation of ratios
The relationship between
ratio and fractions,
decimals, and percents

39. Use appropriate vocabulary in descriptions of situations involving ratios, e.g., per, for each, for every, etc.
40. Explain the concept of ratio.
41. Represent a ratio using objects, pictures/diagrams, and numerals.
42. Explain the relationship that exists among ratio, percents, fractions, and decimals.
43. Express a ratio as a fraction.

Roman numerals

Use of Roman numerals in
real life
Representation of Roman
numerals

44. Identify real life situations that involve the use of Roman numerals (e.g., the numbers on clocks and watches, numbering of chapters in a book, the information at the end of a movie indicating the year in which it was made).
45. Identify and write Roman numerals for numbers from 1 to 20.
46. State the Roman numeral corresponding to 1 000.
47. Write the current year in Roman numerals.

Computation

Topic

Learning Outcomes

By the end of Grade Six, students should be able to:

General

Computation-related vocabulary
Relationships among the four basic operations
Checking answers
Computation strategies

1. Use computation vocabulary (e.g., sum, product, total, etc.) to describe situations that involve addition, subtraction, multiplication, or division.
2. Explain the relationships that exist among addition, subtraction, multiplication, or division.
3. Analyse computation situations to determine if an estimate or exact answer is required.
4. Explain the likely effects of an operation.
5. Estimate the answer to a computation.
6. Determine the reasonableness of an estimated or exact answer to a computation, and justify their conclusion.
7. Explain mental computation strategies that may be used in calculations involving addition, subtraction, multiplication or division.
8. Explain pencil and paper computation procedures that may be used in calculations involving addition, subtraction, multiplication, or division.
9. Explain how to use the calculator to carry out addition, subtraction, multiplication or division.
10. Select an appropriate computation strategy (mental computation, use of pencil and paper, or use of a calculator) to carry out addition, subtraction, multiplication, or division.

Whole numbers

Problem solving
Basic facts
Addition without and with regrouping
Subtraction without and with regrouping
Multiplication by one- and two-digit numbers
Division by one- and two-digit numbers

11. Create and solve problems involving addition, subtraction, multiplication, and/or division of whole numbers.
12. Recall the basic facts for addition, subtraction, multiplication, and division of whole numbers.
13. Add sets of whole numbers, without and with regrouping.
14. Carry out subtraction involving whole numbers, without and with regrouping.
15. Multiply whole numbers by one- and two-digit numbers.

16. Divide whole numbers by one- and two-digit numbers, without and with remainder.

Fractions

Addition of proper fractions

Addition of mixed numbers

Subtraction of proper fractions

Subtraction of mixed numbers

Multiplication by whole numbers and proper fractions

Multiplication of mixed numbers

Division by whole numbers

17. Create and solve problems involving addition, subtraction, and/or multiplication of fractions.

18. Add proper fractions with like or unlike but related denominators.

19. Add a proper fraction to a whole number.

20. Add a proper fraction to a mixed number.

21. Add two mixed numbers.

22. Subtract proper fractions with like or unlike but related denominators.

23. Subtract a proper fraction from a mixed number with like or unlike but related denominators, without and with regrouping.

24. Subtract a mixed number from a mixed number with like or unlike but related denominators, without and with regrouping.

25. Multiply proper and mixed fractions by whole numbers.

26. Multiply proper fractions

27. Multiply a mixed number by a proper fraction.

28. Multiply two mixed numbers.

29. Divide a proper fraction by a whole number.

30. Divide a mixed number by a whole number.

Decimals

Problem solving

Addition without and with regrouping

Subtraction without and with regrouping

Multiplication by a one- or two-digit number

Division by a one- or two-digit number

31. Create and solve problems involving addition, subtraction, and/or multiplication of decimal numbers.

32. Add decimal numbers with up to two decimal places, without and with regrouping.

33. Subtract decimal numbers with up to two decimal places, without and with regrouping.

34. Multiply a decimal number with up to two decimal places by a one- or two- digit whole number.

35. Divide a decimal number with up to two decimal places by a one- or two- digit whole number.

Percents

Problem solving

Calculations of percents

Profit and loss as a percent

36. Create and solve problems involving percents, cost price, selling price, profit and loss.
37. Calculate a given percent of a number.
38. Express one number as a percent of another.
39. Calculate the selling price of an article, given the cost price and the profit or loss as an amount of money or as a percent.
40. Calculate the cost price of an article given the selling price and the profit or loss as an amount of money only.
41. Calculate profit or loss given the cost price and selling price of an article.
42. Express profit, loss, and discounts as a percent of the cost price.

Ratio

Sharing in a given ratio

Problem solving

43. Share a quantity in a given ratio.
44. Create and solve problems involving ratio.